

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIDEFUMI HIURA

Appeal No. 2002-0465
Application No. 09/432,610

HEARD: September 17, 2002

Before WALTZ, KRATZ and TIMM, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 28-37, which are all of the claims pending in this application.

BACKGROUND

Appellant's invention relates to a method for treating a surface atomic layer of a graphite sheet comprising the steps of selecting a pattern, determining growth points that can be expanded to form the selected pattern, forming generally circular

holes only in the surface atomic layer of the graphite sheet at the growth points and enlarging the holes in a radial direction by heating to form the selected pattern. An understanding of the invention can be derived from a reading of exemplary claim 28, which is reproduced below.

28. A method of patterning a surface atomic layer of a graphite sheet, comprising the steps of:

selecting a pattern to be formed in a surface atomic layer of a graphite sheet;

determining growth points in the selected pattern that will expand to form the selected pattern;

forming generally circular holes at the growth points only in the surface atomic layer; and

radially enlarging the holes in the surface atomic layer by heating the surface atomic layer until the selected pattern is formed.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Hoffman	5,271,917	Dec. 21, 1993
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Jones, "C-Axis Microcone Formation In Nuclear Graphites Due To Graphite Removal By Impurity-Inhibited Electronically-Excited Oxidation Reactions," Carbon, Vol. 8, pp. 681-83 (1970).

Brown, "The Equilateral Nature Of The Hexagonal Etch Pit Developed During Carbon Oxidation," Carbon, Vol. 25, No. 5, pp. 617-19 (1987).

We limit our review to the two rejections advanced by the examiner. In this regard, claims 28, 29 and 32-37 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hoffman in view of Brown. Claims 28-37 stand rejected under 35 U.S.C. § 103 as being unpatentable over Jones in view of Brown.

Rather than reiterating the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejection, we make reference to the examiner's answer and to appellant's briefs for a complete exposition thereof.

OPINION

Upon careful review of the entire record including the respective positions advanced by appellant and the examiner, we find ourselves in agreement with appellant insofar as the examiner has failed to carry the burden of establishing a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). Accordingly, we will not sustain the examiner's rejections.

A reading of appealed claim 28, the sole independent claim on appeal, reveals that all of the claims on appeal require a method that includes several steps as outlined above for patterning a surface atomic layer of a graphite sheet.

With regard to the examiner's § 103 rejection over Hoffman and Brown, the examiner (answer, pages 2 and 3) asserts that Hoffman treats graphite with catalytic metal to enlarge surface defects/pores and relies on Brown for allegedly showing a regular hole shape that Hoffman does not disclose. However, even if we could agree with all of the examiner's assertions regarding the prior art teachings, which we do not,¹ the examiner has not fairly established how those teachings that the examiner attributes to the applied references would have led one of ordinary skill in the art to the here claimed method.

With regard to the examiner's § 103 rejection over Jones and Brown, the examiner's explanation falls somewhat short of making

¹ We note, for example, that Hoffman appears to be concerned with increasing the active surface area and roughness of a carbon fiber surface and does not even appear to mention forming holes in a surface atomic layer of graphite at selected growth points let alone treat such a surface as herein claimed to form a pattern via heating the surface atomic layer so as to enlarge such holes.

out a prima facie case of obviousness. While Jones is at least concerned with treating graphite to form a cone-shaped micro-structure via electronically-excited gas-graphite oxidation reactions and Brown suggests that modeling (Monte Carlo simulation) predicts that equilateral hexagonal etch pits may be formed during carbon oxidation of thin graphite slices assuming etch pit sides burn sequentially, the examiner simply has not established how the combination of Jones and Brown teach or suggest the here claimed patterning method. In this regard, the examiner's comments (answer, pages 3 and 4) regarding responsible experiments and the obviousness of creating "holes in the same shape and location claimed in the process of Jones. . ." (Answer, page 4) says little, if anything, as to how one of ordinary skill in the art would have arrived at the claimed invention from the actual teachings of each of the applied references alone or in combination. On this record, we will not sustain the rejections as stated by the examiner.

CONCLUSION

The decision of the examiner to reject claims 28, 29 and 32-37 under 35 U.S.C. § 103 as being unpatentable over Hoffman in

view of Brown and to reject claims 28-37 under 35 U.S.C. § 103 as being unpatentable over Jones in view of Brown is reversed.

REVERSED

THOMAS A. WALTZ)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
PETER F. KRATZ)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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)	
CATHERINE TIMM)	
Administrative Patent Judge)	

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APPEAL NO. - JUDGE KRATZ
APPLICATION NO.

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DECISION: **ED**

Prepared By:

DRAFT TYPED: 07 Aug 03

FINAL TYPED: